LESSON 1.2

NAME _____ DATE _____

Practice A

For use with pages 8–13

Complete the conjecture based on the pattern in the examples.

1. *Conjecture:* The product of any two even numbers is __?__.

   EXAMPLES

   $4 \cdot 2 = 8$ $8 \cdot 4 = 32$ $4 \cdot 12 = 48$

   $6 \cdot 10 = 60$ $10 \cdot 10 = 100$ $22 \cdot 20 = 440$

2. *Conjecture:* The sum of any two consecutive whole numbers is a(n) __?__ number.

   EXAMPLES

   $3 + 4 = 7$ $9 + 10 = 19$ $16 + 17 = 33$

   $5 + 6 = 11$ $10 + 11 = 21$ $23 + 24 = 47$

3. *Conjecture:* The sum of any two even numbers is __?__.

   EXAMPLES

   $2 + 10 = 12$ $18 + 8 = 26$ $12 + 36 = 48$

   $6 + 4 = 10$ $14 + 6 = 20$ $22 + 8 = 30$

4. *Conjecture:* The difference of any two odd numbers is __?__.

   EXAMPLES

   $9 - 3 = 6$ $15 - 1 = 14$ $27 - 3 = 24$

   $11 - 7 = 4$ $19 - 17 = 2$ $17 - 9 = 8$

In Exercises 5–8, show the conjecture is false by finding a counterexample.

5. If the three corners of a triangle all touch the same circle, the sides of the triangle must be of equal length.

6. If the product of two numbers is an integer, then both numbers must be integers.

7. If the product of two numbers is negative, then both numbers must be negative.

8. The difference of two positive numbers is positive.

9. Jose is a child living in Argentina, where spring begins in September and ends in December. Because he sees the days getting longer in these months, he makes a conjecture that the days are getting longer all over the world. Show that Jose's conjecture is false by writing a counterexample.

10. You set up a bulletin-board site on the Internet. For the first six days, the numbers of "hits," or people that visit your site, are given below.

    Day 1: 10 hits Day 2: 20 hits Day 3: 40 hits

    Day 4: 79 hits Day 5: 161 hits Day 6: 320 hits

    Make a conjecture about how many hits your site will get on days 7 and 8.

LESSON 1.2

NAME _____ DATE _____

Practice B

For use with pages 8–13

Complete the conjecture based on the pattern in the examples.

1. *Conjecture:* The product of two odd numbers is __?__.

   EXAMPLES

   $3 \cdot 5 = 15$ $5 \cdot 7 = 35$

   $9 \cdot 7 = 63$ $11 \cdot 9 = 99$

2. *Conjecture:* The difference of any two even numbers is __?__.

   EXAMPLES

   $26 - 4 = 22$ $16 - 12 = 4$

   $6 - 10 = -4$ $14 - 8 = 6$

3. *Conjecture:* The sum of three even numbers is __?__.

   EXAMPLES

   $24 + 2 + 4 = 30$ $-4 + 12 + 10 = 18$

   $8 + 10 + 6 = 24$ $14 + 0 + 16 = 30$

4. *Conjecture:* The sum of an odd number of odd terms is __?__.

   EXAMPLES

   $9 + 13 + 1 = 23$ $3 + 5 + 9 + 7 + 1 = 25$ $1 + 1 + 3 = 5$

   $3 + 7 + 9 + 5 + 11 + 13 + 5 = 53$

In Exercises 5–8, show the conjecture is false by finding a counterexample.

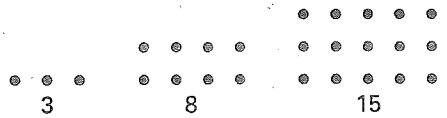
5. If the quotient of two numbers is positive, then both numbers must be positive.

6. If a four-sided shape has two sides the same length, then it must be a rectangle.

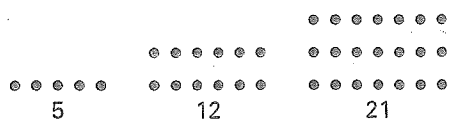
7. If a four-sided shape has opposite sides that are the same length, then it must be a square.

8. If the quotient of two numbers is an integer, then both numbers must be integers.

9. The dot patterns at the right form rectangles with a length that is two more than the width. Draw the next figure to find the next "rectangular" number.



10. Use the pattern of rectangular dot patterns at the right to find the next two "rectangular" numbers.



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